

Notice of Allowability

Application No.

10/567,740

Applicant(s)

ASAKA ET AL.

Examiner

Tri V. Nguyen

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/03/07.
2. ☒ The allowed claim(s) is/are 10-17.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Lorna M. Douyon
LORNA M. DOUYON
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Shuji Yoshizaki on 09/20/07.

2. The application has been amended as follows:

2.1 Replace abstract with:

--An actuator element which functions stably in air and in vacuo, and can be driven at low voltages is described. A actuator element which includes at least two electrode layers, each of which is mutually insulated and comprises a gel composition comprising carbon nanotubes, an ionic liquid and a polymer, are formed on the surface of ion-conductive layer comprising a gel composition comprising an ionic liquid and a polymer, so that the actuator element is capable of being flexed or deformed by creating a potential difference between the electrode layers; and an actuator element wherein at least two electrode layers, each of which is mutually insulated, are formed on the surface of ion-conductive layer, conductive layer is formed on the surface of each electrode layer, and the actuator element is capable of being flexed or deformed by creating a potential difference between the conductive layers.--

2.2 Claims 1, 2, 8 and 9 have been cancelled.

STATEMENT OF REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance:

The most pertinent prior art known to the Examiner is listed on the attached forms PTO-892 and 1449. As shown by Fukushima et al., Smela and newly found prior art Bennett et al., the close prior arts of record, a composition with a polymer, an ionic liquid (also called molten salt) and carbon nanotubes are well-known. Furthermore, Smela and Baughman et al. disclose the features of carbon nanotubes and polymer in an actuator. However, none of the prior art of record including Fukushima et al., Smela, Bennett et al. and Baughman et al. provides sufficient suggestion or motivation to teach the method of making an actuator that includes (a) three layers ordered in a specific structure and (b) with each layer having specific components as well as the resulting actuator as required in the present claims. Accordingly, the claimed invention, as a whole, would not have been obvious to one of ordinary skill in the nano-engineering art. None of the prior art of record teaches, discloses or suggests the method of making an actuator in the manner as those recited the present claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri V. Nguyen whose telephone number is (571) 272-6965. The examiner can normally be reached on M-F 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas McGinty can be reached on (571) 272-1029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

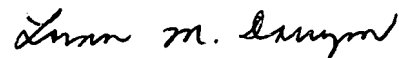
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NVT

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September 25, 2007

**LORNA M. DOUYON**
PRIMARY EXAMINER